

NASA TECH BRIEF



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Surfactant for Dye-Penetrant Inspection Is Insensitive to Liquid Oxygen

The problem:

Metal surfaces to be nondestructively inspected for flaws by the dye-penetrant method must be cleaned with a surfactant (detergent, emulsifier) before and after application of the dye. Although dye penetrants that are insensitive to liquid oxygen are now available, unmodified commercially available surfactants cannot be safely used in the presence of this strong oxidant.

The solution:

Blend hexachlorobutadiene, or other solvent that is insensitive to liquid oxygen, into a mixture of commercially available surfactants.

How it's done:

The surfactants to be blended with the hexachlorobutadiene may contain nonionic and ionic components. A typical formulation consists of 68% by weight of hexachlorobutadiene, 20% by weight of a polychlorinated polyphenyl, and 12% by weight of a mixture of

surfactants based on alkaryl polyether alcohols, sulfonates, and sulfates.

Note:

Inquiries concerning this innovation may be directed to:

Technology Utilization Officer
Marshall Space Flight Center
Huntsville, Alabama, 35812
Reference: B66-10131

Patent status:

Inquiries about obtaining rights for the commercial use of this invention may be made to NASA, Code GP, Washington, D.C., 20546.

Source: North American Aviation, Inc.
under contract to
Marshall Space Flight Center
(M-FS-475)

Category 03

MASSACHUSETTS

Chapter 151B, § 1A. (1) Any person who is convicted of a crime involving the use of a firearm shall be deemed to be a dangerous person for the purposes of this chapter.

Chapter 151B, § 1B. (1) Any person who is convicted of a crime involving the use of a firearm shall be deemed to be a dangerous person for the purposes of this chapter.

Chapter 151B, § 1C. (1) Any person who is convicted of a crime involving the use of a firearm shall be deemed to be a dangerous person for the purposes of this chapter.

Chapter 151B, § 1D. (1) Any person who is convicted of a crime involving the use of a firearm shall be deemed to be a dangerous person for the purposes of this chapter.

Chapter 151B, § 1E. (1) Any person who is convicted of a crime involving the use of a firearm shall be deemed to be a dangerous person for the purposes of this chapter.